

## **REMARKS**

Reconsideration and withdrawal of the rejections of the claimed invention is respectfully requested in view of the amendments, remarks and enclosures herewith, which place the application in condition for allowance.

### **I. STATUS OF CLAIMS AND FORMAL MATTERS**

The applicants understand that the amendments from the applicants' 9 December 2009 response were entered according to the Advisory Action dated 30 December 2009. Therefore, claims 16, 21, 23, and 28-33 are now pending in this application (new claim 33 represents the elected species). No new matter has been added by this amendment.

It is submitted that the claims, herewith and as originally presented, are patentably distinct over the prior art cited in the Office Action, and that these claims were in full compliance with the requirements of 35 U.S.C. § 112.

### **II. THE 35 U.S.C. 103(a) REJECTION HAS BEEN OVERCOME**

Claims 15-18, 20-25, 28-32 were rejected as allegedly being obvious by Pappas-Fader et al. (US 5,736,486 - "Pappas-Fader") and Kazutomi et al. (JP 10-330202 - "Kazutomi"). The applicants request reconsideration of this rejection for the following reasons.

#### ***Restriction and Election of Species is Incongruous with Rejection over Pappas-Fader and Kazutomi***

The elected invention under examination is where the active ingredient is iodosulfuron (i.e. a specific type of sulfonylurea) and the sulfosuccinate(s) of the formula (I) is sodium di-(2-ethylhexyl) sulfosuccinate. The election was made in response to the election of species requirement of 10 October 2002. The election of species was made because the application contained claims directed to patentably distinct species of the claimed invention, i.e. liquid formulations comprising gemini surfactants and/or sulfosuccinates plus one or more ALS inhibitor (which includes iodosulfuron).

However, Kazutomi is relied upon for the teaching of a dioctyl sulfosuccinate which is different from 2-ethylhexyl-sulfosuccinate. As such, this is a patentably distinct invention according to the holding of the election of species requirement.

Likewise, Pappas-Fader is acknowledged not to teach the use of iodosulfuron ("Note that Pappas-Fader suggests the mixture comprising actives other than sulfonylureas such as anilofos

and propanil as well as sulfonylurea actives such as chlorsulfuron, sulfometuron-methyl.” page 2 of the 18 September Office Action.), nor does Kazutomi refer to iodosulfuron. As such any reliance on different herbicides for Pappas-Fader and Kazutomi is misplaced because other herbicides have been deemed to be patentably distinct inventions.

As such, it is incongruous that a reference (Pappas-Faden) which is acknowledged to lack a proper teaching for the sulfosuccinate or ALS inhibitor, much less the specific combination elected can be an obvious variation of the applicants’ claimed invention as examined when other variations have been held to be patentably distinct inventions.

These points did not appear to be addressed in the Advisory Action of 30 December 2009.

***Unexpected Results Provide Support that the Applicants’ Claimed Liquid Formulations Are Non-obvious over Pappas-Faden and Kazutomi***

For convenience sake, the applicants reproduce the explanation of the results from the response filed on 9 December 2009 and the applicants respectfully request that they are reconsidered in light of the applicants’ comments about the statements made in the Advisory Action mailed on 30 December 2009.

The applicants showing of unexpected results did not appear to be given its proper weight because the amounts of herbicide, solvent and surfactants were different (after accounting for the presence or lack thereof of a sulfosuccinate).

However, there is no requirement that a comparative test have equal amounts of components save to account for the different compound in question so long as the evidence tends to prove the assertion made by the applicants which in this case is that the use of sulfosuccinates reduces the loss of the iodosulfuron (or sulfonylurea compound). As can be seen from the data below, the applicants have not shown an incremental prevention of loss, but a large prevention (avg. of about 2% vs. at least 75%).

It is well known that evidence of unobvious or unexpected advantageous properties, such as superiority in a property the claimed compound shares with the prior art, can rebut *prima facie* obviousness. "Evidence that a compound is unexpectedly superior in one of a spectrum of common properties . . . can be enough to rebut a *prima facie* case of obviousness." No set

number of examples of superiority is required. *In re Chupp*, 816 F.2d 643, 646, 2 USPQ2d 1437, 1439 (Fed. Cir. 1987).” Here the applicants have shown a greatly reduced loss of iodosulfuron which is directly related to the presence or absence of a sulfosuccinate.

Likewise, because the teachings of Pappas-Faden and Kazutomi are so remote from the applicants’ claimed invention, the comparative data below is actually closer to the applicants’ claimed invention than Pappas-Faden and Kazutomi in that the active ingredient in the comparative data is iodosulfuron. It is well known that applicants may compare the claimed invention with prior art that is more closely related to the invention than the prior art relied upon by the examiner. *In re Holladay*, 584 F.2d 384, 199 USPQ 516 (CCPA 1978); *Ex parte Humber*, 217 USPQ 265 (Bd. App. 1961); *see also MPEP 716.02(e)*.

Lastly, it also appeared that the data was objected to for not being in commensurate in scope with the claimed invention. However, the claims being examined were restricted to iodosulfuron (i.e. a specific type of sulfonylurea) and the sulfosuccinate(s) of the formula (I) is sodium di-(2-ethylhexyl) sulfosuccinate which is similar to claim 29 and exactly the elected species represented by new claim 33. In addition, no counterevidence was provided which would have established to one of ordinary skill in the art having the applicants’ data before them as to why the holding of unexpected results would not have extended to other sulfonylureas or sulfosuccinates.

*Arguments from 9 December 2009 response by applicants*

First, the applicants note that they have provided evidence of unexpected results for their combination of elements which constitute the claimed liquid formulation which has not been refuted by the Examiner. As the unexpected results appear to be clear cut to one of ordinary skill in the art, the applicants can only surmise that the Examiner was having difficulty reading the Tables within the specification.

These tables have been reformulated in the chart below (see next page) in order to address only the elected combination of sulfosuccinates and ALS inhibitors. The applicants have added a column entitled “Loss in %” and “Stable formulation?” to further illustrate the unexpected results.

Recipe No.	RESULTS of Table 1				RESULTS of Table 2	
	Ingredient	III	VIII	IX	1	2
Active Ingredients	<b>Iodosulfuron</b>	7.46	4.65	4.61	1.40	1.40
	Fenoxaprop-ethyl		7.94	8.01	11.08	11.08
	Mefenpyr-diethyl		3.05	3.08	4.17	4.17
Stabilizing polycarboxylic acids, e.g. <b>sulfosuccinates</b>	Triton GR 7 ME®	81.98	84.36		NONE	NONE
	Na-DOS			24.99		
Solvents	Propylene carbonate	10.56			83.35	73.35
	Edenor MESU®			39.52		
Surfactants	Soprophor CY8®			19.79		
	Genapol X-060®					10.0
The initial values and final values (g of iodosulfuron in the formulation were determined by HPLC)	Initial value (Iodosulfuron)	7.32	4.31	3.14	1.29	1.35
	Final value (Iodosulfuron), i.e. after storage at T = 54°C, 14 days	7.31	4.17	3.07	0.32	<0.05
	Loss in %	<b>0.1</b>	<b>3.2</b>	<b>2.2</b>	<b>75.2</b>	<b>&gt;96.3</b>
Comment	Stable formulation?	<b>YES</b>	<b>YES</b>	<b>YES</b>	<b>NO</b>	<b>NO</b>

As can be seen from the above data, the formulation of the invention resulted in stable formulations and much less loss of iodosulfuron compared with similar formulations lacking iodosulfuron.

***Credible explanation for teaching of solution as related to iodosulfuron in Pappen-Fader still has not been disclosed in the Office Action***

Pappen-Faden is still alleged to be directed to solutions as in the applicants' claimed invention, but there is no evidence for this assertion. The passage from col. 10, lines 24-44 from Pappen-Faden ("Useful formulations include liquids such as solutions... - col. 10, line 29) is relied upon in the Office Action, but this overlooks the fact that when considering the reference as a whole, it is clear that Pappen-Faden is directed toward herbicidal mixture of ***anilofos with propanil, or one or more of the compounds*** selected from azimsulfuron, metsulfuron methyl, chlorimuron ethyl, bensulfuron methyl, ethametsulfuron methyl, nicosulfuron, rimsulfuron, sulfometuron methyl, thifensulfuron methyl, tribenuron methyl, triflusaluron methyl, methyl 2-[[[(4,6-dimethoxy-2-pyrimidinyl)amino]carbonyl]amino]sulfonyl]-6-(trifluoro-methyl)-3-pyridinecarboxylate, chlorsulfuron, and hexazinone. (see Abstract).

As there is no requirement that iodosulfuron (or any sulfuron-type herbicide) be present in the Pappen-Faden mixture, there is no evidence that the mention of solution by Pappen-Faden applies to an iodosulfuron mixture.

The Office Action cited col. 11, lines 9-29 as evidence of formation of a solution, but then overlooks the very next paragraph (see especially lines 30-35) in Pappen-Faden which contradicts that the reference to a solution in lines 9-29 applies to iodosulfuron:

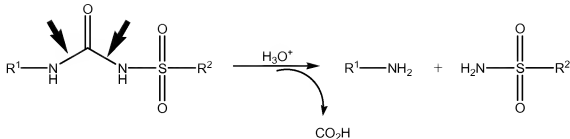
“Solutions, including emulsifiable concentrates, can be prepared by simply mixing the ingredients. Chemically stabilized aqueous sulfonylurea or agriculturally suitable ***sulfonylurea salt dispersions*** are taught in U.S. Pat. No. 4,936,900. Solution formulations of sulfonylureas with improved chemical stability are taught in U.S. Pat. No. 4,599,412 (this patent requires the contacting of the formulation with ***molecular sieves*** to achieve solution formulation).” One of ordinary skill in the art would glean from this paragraph that dispersions not solutions are intended or the use of molecular sieves would be required to achieve a solution with iodosulfuron.

With regard to the latter, one of ordinary skill in the art would not regard a composition which at best would require ***anilofos, iodosulfuron and molecular sieves*** to be an obvious variant of composition which only requires iodosulfuron and sodium di-(2-ethylhexyl)sulfosuccinate.

#### ***Additional comments***

(1) Both the Pappas-Fader and Kazutomi refer to an aqueous suspension which is apparently being held to be equivalent to the liquid formulation of the invention and is the link relied upon in the Office Action for combining the references.

However, with regard to sulfonylurea compounds the state of the art is such that one of ordinary skill in the art would not be directed toward using aqueous suspensions because of the sensitivity of these compounds to decomposition via hydrolysis (see diagram below):



Therefore, Pappas-Fader and Kazutomi do not contradict the state of the art with respect to the use of aqueous suspensions and sulfonylurea herbicides, i.e. an expectation that a great deal of sulfonylurea would be lost to degradation (which is illustrated in the table above “Results in Table 2” columns).

(2) The applicants disagree with the statement on page 6 of the Office Action which stated “[t]he alkylsulfosuccinate have not been shown to enhance the stability of sulfonylurea compounds.” as this is precisely what the data in the table above shows.

(3) Consideration of the Pappas-Fader as a whole is especially relevant in this instance in that the reference is directed toward anifolos in a synergistic combination with another herbicides and does not teach or suggest the use of a sulfosuccinate to stabilize a sulfonylurea herbicide (nor does the passage within Pappas-Fader to U.S. Patents 4,936,900 or 4,599,912 teach the applicants’ use of sulfosuccinate to achieve stabilization of a sulfonylurea herbicide) or that stabilization is even necessary when a sulfonylurea is used in combination with anifolos.

(4) The Office Action stated that Kazutomi (referred to as Yasi in the OA) was relied upon to show that alkylsulfosuccinate compounds such as octyl sulfosuccinate are employed in herbicide compositions (see page 6). However, any number of compounds, excipients and additives can possibly be added to an herbicidal composition, i.e. this genus of potential compounds which can be added to a herbicidal composition represents an infinite number of solutions to a problem and not a finite number.

Kazutomi lacks any impetus for the use of a sulfosuccinate compound over any of the other possible compounds described in Kazutomi for combination with synergistic anifolos + second herbicide compositions of Pappas-Fader. (In fact, based on the “a compound which can be added to an herbicide composition” logic, one of ordinary skill in the art would not even have been directed to use Kazutomi as a reference over a general herbicide dictionary, i.e. whereas the

Examiner has a copy of the answer key ("the claims"), the person of ordinary skill in the art does not have this luxury.)

In addition, there is nothing within Kazutomi or Pappas-Fader which suggests the unexpected stability of sulfonylurea compounds in liquid solution when a sulfosuccinate is also present.

These additional comments did not appear to be addressed in the Advisory Action of 30 December 2009.

### ***Conclusion***

The applicants claimed liquid formulation is unobvious over the combination of Pappas-Fader and Kazutomi because the claims under examination have been restricted to species which have been acknowledged by the Office as being a patentably distinct invention over alternative species and the fact that neither Pappas-Fader nor Kazutomi alone or in combination do not teach or suggest the applicants' specific combination of iodosulfuron and sodium di-(2-ethylhexyl) sulfosuccinate is evidence that the invention is patentably distinct over Pappas-Fader and Kazutomi.

Even if the scope of the active ingredients and sulfosuccinate were broadened from the initial election of species, the applicants have shown evidence of unexpected results which have not been refuted and serves as additional evidence in favor of patentability and non-obviousness.

Lastly, the applicants have previously provided technical reasons why the interpretation of Pappas-Fader and Kazutomi was erroneous which also have not been refuted with additional evidence.

As such, the applicants have addressed the previous obviousness rejection and the burden now rests with the Office to reestablish the *prima facie* case of obviousness in light of the applicants arguments and evidence to date, i.e. the preponderance of the evidence at this stage in the prosecution is that the applicants claims are non-obvious unless further contrary evidence is provided in the next Office Action.

**CONCLUSION**

In view of the remarks and amendments herewith, the application is believed to be in condition for allowance. Favorable reconsideration of the application and prompt issuance of a Notice of Allowance are earnestly solicited. The undersigned looks forward to hearing favorably from the Examiner at an early date, and, the Examiner is invited to telephonically contact the undersigned to advance prosecution.

Respectfully submitted,  
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